

WHAT IS CLAIMED IS:

1. A medical device, comprising:
a biocompatible body, and
a marker secured to the polymer body, the marker including a fluoroscopic imaging enhancement material and an MRI enhancement material.
2. The device of claim 1 wherein the biocompatible body comprises a polymer.
3. The device of claim 1, wherein the biocompatible body comprises a material selected from the group consisting of metal, ceramic, autogeneous materials, biologically derived materials and combinations thereof.
4. The device of claim 1 wherein the marker is secured by friction.
5. The device of claim 1 wherein the marker is secured by adhesive.
6. The device of claim 1 wherein the marker is secured by shrink material.
7. The device of claim 1 wherein the marker includes multiple layers.
8. The device of claim 1 wherein the layers have a thickness of about 0.005 inch or less.
9. The device of claim 1 wherein the fluoroscopic imaging enhancement material and MRI enhancement layer are provided in separate layers.
10. The device of claim 1 wherein the marker includes three or more layers.
11. The device of claim 1 wherein the marker includes 4 to 20 layers.
12. The device of claim 1 wherein the marker includes a drug layer.
13. The device of claim 1 wherein the marker has a first layer including a fluoroscopic imaging enhancement material and a second layer having an MRI enhancement material, and a third layer.
14. The device of claim 13 wherein the third layer is in contact with said biocompatible body.
15. The device of claim 13 wherein said third layer is between the first and second layers.

16. The device of claim 13 wherein the third layer defines an exterior surface of the marker.
17. The device of claim 1 wherein the fluoroscopic imaging enhancement material and the MRI enhancement material are in separate layers and the MRI imaging enhancement material has a radiopacity of about 0.9 or less than the radiopacity of stainless steel.
18. The device of claim 17 wherein the MRI enhancement material has an atomic number of 40 or less.
19. The device of claim 17 including a layer including MRI enhancement material, the layer having a thickness of about 1 micron or less.
20. The device of claim 1 wherein the MRI enhancement material is present at 25% or less by weight of the fluoroscopic imaging enhancement material.
21. The device of claim 1 wherein the marker has a radiopacity of about 1.1 times or more stainless steel.
22. The device of claim 1 wherein the marker has a MRI visibility about equal or greater than about 280 mg/ml gadodiamine in 5000 ml blood.
23. The device of claim 1 wherein the fluoroscopic imaging material has a density of about 9.9g/cm^3 or more.
24. The device of claim 1 wherein the fluoroscopic material is gold, platinum, tungsten, tantalum, rhenium, bismuth, silver, iridium and mixtures, compounds, complexes and mixtures thereof.
25. The device of claim 1 wherein the MRI material is ferromagnetic, paramagnetic or superparamagnetic.
26. The device of claim 1 wherein the MRI material has a magnetic susceptibility of about 500×10^{-6} Emu or greater.

27. The device of claim 1 wherein the MRI material is selected from nickel, iron, magnesium, cobalt and alloys, oxides and mixtures thereof.

28. The device of claim 1 wherein the MRI material is gadodiamine, dysprosium, terbium and alloys, oxides and mixtures thereof.

29. The device of claim 1 wherein the marker extends over at least 50% of the circumference of the body and the fluoroscopic imaging material and MRI material are arranged concentrically with respect to one another.

30. The device of claim 29 wherein the marker is noncircumferentially conducting.

31. The device of claim 30 wherein the marker extends over 70 to 85% of the circumference of the body.

32. The device of claim 1 wherein the biocompatible body is on a catheter.

33. The device of claim 32 wherein the catheter is formed entirely of polymer at the location where the marker is secured.

34. The device of claim 32 wherein the catheter is a balloon catheter.

35. The device of claim 34 including multiple markers secured to the biocompatible body at locations indicative of the location of a balloon carried by the balloon catheter.

36. The device of claim 1 wherein the biocompatible body is a guidewire.

37. The device of claim 36 wherein the guidewire is composed entirely of polymer at the location the marker is secured to the body.

38. The device of claim 1 wherein the biocompatible body is a stent.

39. A marking system for use with a medical device to mark a region thereof, comprising:

a body that is attachable to the medical device, the body including a fluoroscopic imaging enhancement material and an MRI enhancement material;
wherein the fluoroscopic imaging enhancement material is provided in a first layer and the MRI enhancement material is provided in a second layer, and
wherein the first and second layers are concentric with each other and are bonded.

40. The medical device of claim 39, wherein at least one of the fluoroscopic imaging enhancement material and MRI enhancement material is disposed within a matrix.

41. The medical device of claim 39, wherein the fluoroscopic imaging enhancement material and the MRI enhancement material are disposed within a matrix.

42. The medical device of claim 39, wherein the fluoroscopic imaging enhancement material comprises a pure metal.

43. The medical device of claim 39, wherein the MRI enhancement material is disposed within the matrix.

44. The medical device of claim 43, wherein the matrix is a polymer.

45. The medical device of claim 43, wherein the matrix is a ceramic.

46. The medical device of claim 39, wherein the marking system is noncircumferentially conducting.

47. The medical device of claim 39, wherein the device is selected from the group consisting of catheters, guidewires, medical coils, pacer leads, and vascular stents.

48. A marking system for use with a medical device to mark a region thereof, comprising:

a body with three or more layers,
wherein at least one of the three or more layers comprises a fluoroscopic imaging enhancement material or a MRI enhancement material.

49. The marking system of claim 48, wherein the body comprises 4 to 20 layers.

50. The marking system of claim 48, wherein each of the layers has a thickness between about 0.00005 inches and about 0.005 inches.

51. The marking system of claim 48, wherein one of the layers comprises a bonding layer.

52. The marking system of claim 48, wherein one of the layers comprises a drug-delivery layer.

53. The marking system of claim 48 including an inward-facing projection.

54. A method of attaching a marker to a medical device, the method comprising:
positioning at least one marker at a location along the medical device, wherein the at least one marker includes a first layer comprising a fluoroscopic imaging enhancement material and a second layer comprising a MRI enhancing material; and
securing the marker at the location.

55. The method of claim 54, wherein securing comprises crimping the marker onto the medical device.

56. The method of claim 54, wherein securing comprises adhering the marker onto the medical device.

57. The method of claim 56, wherein adhering comprises applying a glue.

58. The method of claim 56, wherein adhering comprises applying a heat shrink material.

59. The method of claim 54 wherein securing includes:
positioning a first layer comprising an imaging enhancement material on the medical device; and
positioning a second layer comprising an imaging enhancing material on the medical device, such that the first and second layers are concentric.

60. The method of claim 54 wherein the medical device, at the location of said securing has a radiopacity less than stainless steel.

61. The method of claim 59 wherein the medical device, at the location of said securing, is composed of substantially nonferromagnetic, paramagnetic or superparamagnetic material.